

REMARKS

Claims 27-52 are pending in the application. These claims were rejected as follows:

Claims / Section	35 U.S.C. Sec.	References / Notes
27-29, 35-40, 42-44, 46-50 and 52	§102(e) Anticipation	<ul style="list-style-type: none">• Pullen (U.S. Patent No. 5,867,221).
30-34, 45	§103(a) Obviousness	<ul style="list-style-type: none">• Pullen (U.S. Patent No. 5,867,221); and• Girod (U.S. Patent No. 5,854,858).
41, 51	§103(a) Obviousness	<ul style="list-style-type: none">• Pullen (U.S. Patent No. 5,867,221); and• Kwan (U.S. Patent No. 5,910,827).

5 Applicant has amended claims 30, 49 and 52 solely to correct obvious typographical errors—these amendments have no bearing on the scope of claim coverage. Applicant has provided arguments below for distinguishing the present invention from the art cited against it.

10 **35 U.S.C. §102(e), CLAIMS 27-29, 35-40, 42-44, 46-50 AND 52 ANTICIPATION BY PULLEN**

1. *Pullen does not disclose the element of having the one ungrouped picture element [that is not transmitted to the second arrangement] being from at least one area of said image located between image segments, but rather discloses such non-transmitted elements as being those elements in successive*
15 *frames that have not changed from one frame to another.*

As noted by the Examiner on p. 3, lines 1-4 of the OA, in Pullen, the data that is omitted from the transmission from the first arrangement to the second arrangement reflects only unchanged pixilated data between sequential frames. This time-based compression mechanism differs significantly from the space-
5 based compression mechanism of the present invention.

The present invention addresses the problems of block artifacts at the edge of image blocks in block based encoding or object edge artifacts in object based image encoding. That is, the present invention relates to dealing with the abrupt changes of the values of the encoding information that is allocated to the
10 individual picture elements produced by continuity points at the image block edges or respectively at the image object edges (see the introduction on page 1 of the present application).

Consequently, the object underlying the present invention is to provide a method and an apparatus, respectively, which enables image encoding and
15 transmission where the problem of these image disturbances are remedied or at least less noticeable.

According to the present invention, this object is achieved by grouping all except at least one picture elements of a digitized image into a number of image segments (for example, the image blocks or objects mentioned above), the at
20 least one ungrouped picture element being from at least one area of said image located between image segments, and encoding only said picture elements being grouped into an image segment (claim 27). This corresponds to the Example given in Figure 1 B and 1 C, where the parts of the picture between the image blocks

BB are not encoded, and only the picture blocks themselves are encoded. As stated in claim 28, after transmission, the "missing" parts of the picture are restored by interpolating between the encoded, transmitted and decoded picture blocks BB.

5 The same holds true for the corresponding arrangement claims 43 and 44.

Since at least one picture element between the image segments are not encoded and not transmitted and interpolated after transmission and decoding, edge artifacts, for example, do not appear or are less noticeable as there is an interpolation area between adjacent image segments.

10 Contrary to the present invention, Pullen et al. relates to a system and method for compressing related data sets of a sequence (see first sentence of the abstract). As also stated by the Examiner on page 3, lines 1 to 4 of the Office Action, although there is some data which is not encoded and not sent for conserving bandwidth, this not encoded data corresponds to data which is
15 unchanged from one frame to the next. Thus, Pullen et al. clearly relates to comparing several frames in a sequence.

This is clearly different from the present invention where independent of any previous or following frames at least one picture element between image segments is not encoded to remedy the problem of, for example, block artifacts.

20 The only reference made to interpolation in Pullen et al. can be found in column 20, line 54 to column 21, line 19. This paragraph refers to the use of a half-frame mode of operation, where picture elements are interpolated between preceding and following frames. Thus, Pullen et al. relates to an interpolation in

the time domain. In contrast, the present invention uses interpolation within one single image (or frame, to use the language of Pullen et al.) to restore the not encoded and not transmitted picture elements between adjacent image segments, thus remedying the problem of block artifacts or object edge artifacts.

5 The present invention can achieve compression within a single image frame in contrast to Pullen, which requires multiple sequential frames to operate on and does not base its non-transmitted data on an area between image segments, as these image segments are defined by the claims of the present invention.

10 For these reasons, Applicant believes that the present invention is not anticipated by Pullen and respectfully requests that the §102 rejection be withdrawn from the present application.

35 U.S.C. §103(a), CLAIMS 30-34, 45 OBVIOUSNESS OVER PULLEN IN VIEW OF GIROD

2. *Applicant relies on the argument presented under numbered*
15 *paragraph 1 above and asserts that the combination of Pullenin and Girod does not teach or suggest the one ungrouped picture element being from at least one area of said image located between image segments.*

In the OA on p. 4-5, under numbered paragraph 4, the Examiner indicates that while Pullen does not disclose a low-pass filtering of images, Girod does
20 teach the use of low-pass filtering.

Without addressing the merits of this specific argument, Applicant asserts the Girod does not teach or suggest the missing element of the ungrouped picture element being from at least one area of the image located between

image segments and thereby respectfully requests that the §103 rejection be withdrawn from the application.

35 U.S.C. §103(a), CLAIMS 41, 51 OBVIOUSNESS OVER PULLENIN VIEW OF KWAN

3. *Applicant relies on the argument presented under numbered*
5 *paragraph 1 above and asserts that the combination of Pullenin and Kwan does*
not teach or suggest the one ungrouped picture element being from at least one
area of said image located between image segments.

In the OA on p. 5, under numbered paragraph 5, the Examiner indicates that while Pullen does not disclose use of the H.245 standard, Kwan teaches the
10 use of the H.245 standard along with H.263.

Without addressing the merits of this specific argument, Applicant asserts the Kwan does not teach or suggest the missing element of the ungrouped picture element being from at least one area of the image located between image segments and thereby respectfully requests that the §103 rejection be
15 withdrawn from the application.




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CONCLUSION


Inasmuch as each of the objections have been overcome by the amendments, and all of the Examiner's suggestions and requirements have been satisfied, it is respectfully requested that the present application be reconsidered, the rejections be withdrawn and that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450 on June 6, 2003.


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